

REMARKS

Summary of the Office Action

Claims 1-19 are considered in the Office action.

Claims 1 and 11 have been rejected under 35 U.S.C. § 102(e) as anticipated by Kerschner et al. U.S. Patent No. 5,995,243 (“Kerschner”).

Claims 1-2 and 11-12 have been rejected under 35 U.S.C. § 103(a) as obvious over Watanabe U.S. Patent No. 4,831,458 (“Watanabe”) in view of Kerschner.

Claims 3 and 13 have been rejected under 35 U.S.C. § 103(a) as obvious over Watanabe, Kerschner and Falk U.S. Patent No. 6,141,120 (“Falk”).

Claims 4-5 and 14-15 have been rejected under 35 U.S.C. § 103(a) as obvious over Watanabe, Kerschner and “well known prior art.”

Claims 6 and 16 have been rejected under 35 U.S.C. § 103(a) as obvious over Watanabe, Kerschner, Horowitz et al U.S. Patent No. 4,525,071 (“Horowitz”) and Gray et al U.S. Patent No. 6,028,681 (“Gray”).

Claims 7 and 17 have been rejected under 35 U.S.C. § 103(a) as obvious over Watanabe, Kerschner, Horowitz, Gray and “well known prior art.”

Claims 8 and 18 have been rejected under 35 U.S.C. § 103(a) as obvious over Watanabe, Kerschner and Horowitz.

Claims 9 and 19 have been rejected under 35 U.S.C. § 103(a) as obvious over Watanabe, Kerschner and Gray.

Claim 10 has been rejected under 35 U.S.C. § 103(a) as obvious over Watanabe, Kerschner, Horowitz and “well known prior art.”

Reply to § 102(e) Rejections

Claims 1 and 11 have been rejected under § 102(e) as anticipated by Kerschner. The claimed invention recites methods and apparatus for selectively calibrating a scanner during a normal scan of an object. In particular, the claimed methods include affixing a calibration target to a scanning surface of the scanner, and selectively calibrating the scanner with the calibration target during a normal scan of an object. The claimed apparatus include a calibration target, means for attaching the calibration target proximate to a scanning surface of the scanner, and means for

selectively calibrating the scanner with the calibration target during a normal scan of an object. Kerschner does not describe or suggest the claimed invention.

Instead, Kerschner describes a hand-held scanner 12 that includes an illumination and white level calibration system 10. (Col. 3, lines 55-59). Scanner 12 may be used to capture an image of a document 16 by moving scanner 12 over document 16. (Col. 3, lines 59-62). Scanner 12 may include a roller system 38 to assist a user in moving scanner 12 over an object 14 being scanned. (Col. 4, lines 30-33; Col. 8, lines 58-60). To scan an object 14 (e.g., a document 16), a user positions scanner 12 so that roller 38 is positioned flat against the surface of document 16. (Col. 4, line 66 through Col. 5, line 2). The user scans the document by sweeping scanner 12 across document 16. (Col. 5, lines 2-7). Roller system 38 may include a speed control system 39 to assist the user in moving scanner 12 over document 16 at an appropriate speed. (Col. 5, lines 7-10; Col. 8, lines 61-64; Col. 9, lines 37-40).

Illumination and white level calibration system 10 may periodically perform a white level calibration process. (Col. 5, lines 19-21). In particular, illumination and white level calibration system 10 may include a light source assembly 40, a lens assembly 42 and white level reference marks 44. (Col. 4, lines 38-41 and 58-60). During a white level calibration process, light source assembly 40 is turned "ON," thereby illuminating white level reference marks 44. (Col. 5, lines 34-37; Col. 9, lines 60-63). Optical system 58 focuses light rays reflected from white level reference marks 44 on one or more white level pixels 86 in a detector assembly 56. (Col. 4, lines 63-65; Col. 5, lines 38-46; Col. 9, line 63 through Col. 10, line 3). An image processing system 29 detects an output signal from the white level pixels 86 and converts it into a white level signal. (Col. 5, lines 46-49; Col. 10, lines 3-6). The white level signal is compared with a target white point value. (Col. 5, lines 49-51; Col. 10, lines 6-9). If the white level signal equals the target white point value, the image processing system proceeds to scan the document. (Col. 5, lines 52-54; Col. 10, lines 28-31). Otherwise, a microprocessor 24 repeatedly adjusts the intensity of light source 40 until the white level signal equals the target white point value. (Col. 5, lines 54-65; Col. 10, lines 31-42).

Unlike the claimed invention, Kerschner does not describe or suggest methods or apparatus that selectively calibrate a scanner during a normal scan of an

object, but instead only describes calibrating a scanner before or after a normal scan of an object. Indeed, as illustrated in FIG. 11, the normal scan of document 16 (step 87) does not occur until after calibration steps 76-82 have been completed. See Col. 10, lines 28-31 (“If the white level signal is equal to the target white point value, as determined during step 82, then the image processing system proceeds to scan the document at step 87.”) (emphasis added). See also Col. 10, lines 48-51 (“Once the [calibration] process is complete, the scanner 12 will proceed with the scan operation, e.g., the microprocessor 24 will activate the drive roller assembly 38.”) (emphasis added). In other words, the calibration process completes before normal scanning of document 16 ever begins. Alternatively, Kerschner states that scanner calibration may be performed after scanning operations. (Col. 5, lines 31-33; Col. 10, lines 51-53).

Thus, instead of describing the claimed invention, Kerschner actually points away from the claimed invention by describing a system in which scanner calibration occurs only before or after normal scanning of an object. Because Kerschner does not describe the claimed invention, and in fact points away from the claimed invention, applicant respectfully requests that the § 102(e) rejections of claims 1 and 11 be withdrawn.

Reply to § 103(a) Rejections

Claims 1-19 have been rejected under 35 U.S.C. § 103(a) as obvious over Watanabe and Kerschner, and various combinations of Falk, Horowitz, Gray and “well known prior art.” As described above, Kerschner does not describe the claimed invention. Instead, Kerschner points away from the claimed invention by describing calibration processes that are performed either before or after normal scanning of an object. Further, Watanabe does not describe or suggest the claimed invention.

Instead, Watanabe describes a color copying machine that includes an apparatus main body 1, scanner apparatus 2, original cover 3, image formation portion 5 and operation panel 6. (Col. 3, lines 43-64; FIG. 2). Scanner apparatus 2 includes original table 4, carriage 21, amplifiers 26a-26d, analog-to-digital (“A/D”) converter 108, analog switch 27 and shading correction circuit 102. (Col. 4, lines 7-11; Col. 4, lines 22-37; FIGS. 1 and 3). Amplifiers 26a-26d are coupled to external variable resistors GVRa-GVRd, respectively, and OVRa-OVRd, respectively. (Col. 9, lines 20-

23; FIG. 1). Carriage 21 includes light source 23, rod lens array 24 and photoelectric converter 25, which includes CCDs 25a-25d. (Col. 4, lines 12-16). Operation portion 6 includes various keys 7, 41-43 and 49, displays 30a-30e, 31a-31e, 44 and 48, and set portions 45-47. (Col. 4, lines 38-64)

Watanabe's color copying machine operate in either a normal mode or an adjustment mode. (Col. 4, line 65 through Col. 5, line 4; Col. 9, lines 24-30; FIG. 1). In normal mode, the various keys 41-43 and other elements of operation portion 6 may be used to specify the number of prints, stop printing, display the number of prints, set ground color, color density and color tone, select image type modes and perform or display other functions and features. (Col. 4, line 65 through Col. 5, line 4). In contrast, in adjustment mode, keys 41-43 and other elements of operation portion 6 perform or display functions and features related to adjusting offset voltages and gain of amplifiers 26a-26d, and optical axis and focus adjustments of CCDs 25a-25d. (Col. 5, line 5 through Col. 6, line 37). In particular, during the adjustment mode, a white reference plate 28 is repeatedly scanned, with light source 23 variously turned ON and OFF, while the values of external variable resistors OVRA-OVRd, GVRa-GVRd, the positions of CCDs 25a-25d and the distance between the surface of table 4 and rod lens array 24 are adjusted. (Col. 9, line 36 through Col. 12, line 60).

Unlike the claimed invention, Watanabe does not describe or suggest methods or apparatus that selectively calibrate a scanner during a normal scan of an object. Indeed, Watanabe only describes a calibration process that occurs while the copier is specifically set in an adjustment mode (as opposed to a normal mode). Further, because of the various repeated physical and electrical modifications being performed to external variable resistors OVRA-OVRd and GVRa-GVRd, and CCDs 25a-25d during the adjustment process, it seemingly would be impossible to perform the calibration during a normal scan. As a result, Watanabe actually points away from the claimed invention by describing a system in which calibration only may be performed when the copier is not performing a normal scan of an object.

Further, the combination of Watanabe and Kerschner does not describe the claimed invention. Watanabe describes a color copier in which scanner calibration cannot be performed during a normal scan of an object, and Kerschner describes a scanner system in which calibration is performed either before or after a normal scan of

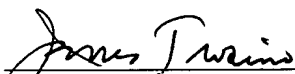
an object. The combination of Watanabe and Kerschner would seemingly be a color copier in which scanner calibration is performed either before or after a normal scan of an object, not during a normal scan of an object.

Accordingly, because neither Watanabe nor Kerschner, alone or combined, describe or suggest the claimed invention, applicant respectfully requests that the § 103(a) rejections of independent claims 1 and 11 be withdrawn. Because all other claims depend from claims 1 and 11, applicant respectfully requests that the § 103(a) rejections of claims 1-19 be withdrawn.

Conclusion

For the reasons stated above, applicant submits that this application, including claims 1-19, is allowable. Applicant therefore respectfully requests that the Examiner allow this application.

Respectfully submitted,



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